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What is the "Post-modern Self"? A Brief Answer

INTRODUCTION

The end of the 20th century and the beginning of the 21st century is seen as somehow different to the time that went before. The greater complexity of society, the ever-increasing influence of the media, and new technologies. Gergen (1991) argued, at the beginning of the 1990s, that these changes have produced a "saturated self", which lives in the moment, and in the present "characterised by struggle or contradiction and incoherence" (Docherty 1993).

WHAT IS THE "POST-MODERN"?

Before it is possible to answer the question of what is the "post-modern self", it is necessary to attempt to define "post-modern". This task is not without difficulty.

"Post-modern" exists in the context of the "modern", which is also open to debate. Haralambos and Holborn (2000) mention four characteristics of "modern" society: faith in progress, in science to solve problems, in the rational; and in the perfection of humanity.

> The grand narrative of the modernist program assumed a logical and ordered universe whose laws could be uncovered by science. As the knowledge of these laws accumulated, it could be used to benefit humankind and eventually lead to the emancipation of humanity from poverty, sickness, and class and political servitude (Polkinghorne 1992 p147).

"Post-modern" challenges all of this.

"Post-modern" is a commonly used term today, but it is an "amorphous thing": "The term itself hovers uncertainly in most current writings between - on the one hand - extremely complex and difficult philosophical senses, and - on the other - an extremely simplistic mediation as a nihilistic, cynical tendency in contemporary culture" (Docherty 1993 p1).

In fact, Docherty (1993) feels that it is pointless to offer a simple definition of "post-modern". This is further compounded by the issue of when "post-modernity" began.

In many cases, other terms have become intertwined with "post-modern". These include "post-industrial society" (Bell 1973), post-structuralism, post-Fordian, consumer society, media society, information society or

electronic society. All in all, it is the "news of the arrival and inauguration of a whole new type of society" (Jameson 1991). While Kroker and Cook (1988) talk of a move to the "simulated economy of excess".

Polkinghorne (1992) lists the themes of "post-modern thought" as:

i) Foundationlessness - there are no universals; "no sure epistemological foundation upon which knowledge can be built".

ii) Fragmentariness - reality is "a disunited, fragmented accumulation of disparate elements and events.

iii) Constructivism - there is no world "out there" to discover, all knowledge is constructed; "human experience consists of meaningful interpretations of the real".

iv) Neopragmatism - the criteria for understanding are not whether knowledge corresponds to reality, because this cannot be known in the "post-modern" world. Rather it is whether knowledge "functions successfully in guiding human action to fulfil intended purposes".

There are many characteristics that are attributed to "post-modern society". For example, Hassan (1987) talks of indeterminacy and immanence. The first term can be used to mean ambiguity or pluralism. The latter can be seen as "the public world dissolves as fact and fiction blend, history becomes derealised by media into a happening" (p91). There is no longer any permanence in culture or society.

At a more philosophical level, Lyotard (1984) prefers to concentrate on the search for truth being abandoned as "denotative language-games" fail. "Denotative language-games" are whether something is true or false that matters. The development of different "language-games" is where language is used to justify or legitimise behaviour in society. In fact, "denotative language-games" have been replaced by "technical language-games". This is where statements are judged on whether they are useful/efficient or not.

While, another French writer, Baudrillard (1983) sees society as now being based on the buying and selling of signs and images. These are "simulacrum" (images of things that do not exist or never existed eg Disneyland).

WHAT IS THE "POST-MODERN SELF"?

From a social constructionist point of view, the self is a product of culture and society. Bruner (1990)

sees the self as "the sum and swarm of participations in social life". Thus the type of society will influence (even determine) the self.

> As people live their lives they are continually making themselves as characters or personalities through the ways in which they reconcile and work with the raw materials of their social situation (Wetherell 1996 p305).

Gergen (1991) sees the condition of "multiphrenia" being at the heart of the "post-modern self". This is a "new constellation of feelings and sensibilities, a new pattern of self-consciousness involving the splitting of the individual into a multiplicity of self-investments" (pp73-4). What happens in practice is that the self becomes "an open slate...on which persons may inscribe, erase, and rewrite their identities as the ever-shifting, ever-expanding, and incoherent networks of relationships invites or permits" (p228).

Gergen (2000) expands on this aspect of the "post-modern self". Individuals are "fractionated beings" because of:

a) "Polyvocality" - "the plethora of conflicting information and opinion".

b) Plasticity - rapid change and throwaway relationships, which leave the inner life as a luxury.

c) Repetition - individuals echo the media eg saying "I love you" to someone comes from romantic novels.

d) Transcience - many and varied roles.

The key notions, then, are uncertainty and change (Stevens and Wetherall 1996).

For some writers, this experience is negative or even pathological: today's self is "a mixture of disillusionment, boredom, confusion and celebration" (Thomas 1996). Frosh (1991) sees "narcissistic personality disorders" as a direct result of "post-modern society". These are a product of ego defence mechanisms that overevaluate a self that is threatened by the insecurity of the "post-modern".

Gottschalk (2000) takes the idea of the "post-modern self" being one of pathology further:

> post-modern selfhood proceeds across a landscape constantly radiating with 'low-level fear' and saturated by compelling media voices which obsessively recite stories of permanent catastrophe, random brutality, and constant dissatisfaction (p37).

Thus "insanity" can be seen as a normal response to "post-modern society". Gottschalk lists the characteristics of "post-modern society", along with "low-level fear", that "normalise, celebrate, and make acceptable psychosocial dispositions that...are fundamentally unhealthy" (p38):

a) "Telephrenic maps" - the intrusion of the media into the self, and the construction of reality through the camera.

b) "Tense ambivalence" - for example, borderline dispositions, which "oscillate between complete indifference and passionate involvement" (pp28-9). DSM IV (1) provides the label for such behaviour as "borderline personality disorder".

> Borderline patients often struggle to maintain coherence in their selves against forces of excessive splitting of aspects of reality. It may be that their selves have already begun to collapse (Thomas 1996 p328).

c) "Reasonable suspicion" (or even paranoia in some cases).

d) "So fast so numb" - gratuitous images of death and dying. Writers have called this "necrophilic television" or the "pornography of dying".

e) "Sociopathic" characteristics including caring for the self only.

I want to include three other important aspects of Euro-American cultures today that influence the self:

i) The "commodification" of every aspect of life. Crooks et al (1992) call this "hypercommodification". Everything, from sexual fantasies to patriotism, is constructed in such a way that it can be priced and sold. "Time is money" is the ultimate phrase of "consumer capitalism" (Brewer 2001) today.

ii) The "sexualisation" of all aspects of society (primarily "heterosexualisation"). For example, if something is fashionable, it is called "sexy". Thus it is possible to have "sexy ideas". MacKinnon (1982) notes that for advertisers sexual images of women are "compelling to the consumer". The simple phrase is that "sex sells".

iii) The distancing between the consumer and the producer. The product is made in another country and

passes through many hands before the consumer buys it. Thus there is no relationship between the person who produced the good and who consumes it. What this creates is a feeling of powerlessness on the part of the consumer.

CONCLUSION

There are many changes in the "post-modern society", and thus the "post-modern self". Many processes are negative, or certainly their effect on the self can be. We are left with people clinging on to a few values that matter in order to establish their identity:

- "trying to make a little sense of it all";
- "trying to make something of my life";
- "trying to find love".

In Euro-American cultures, individuals are seeking their answer(s) to these basic values of "post-modern consumer capitalism". All of this in the context of the blurring of reality and fantasy. "Society thus produces the Other of the real - fantasy - to legitimise the normativity of its own practices" (Docherty 1993).

FOOTNOTE

1. DSM IV is the classification of mental illnesses produced by the American Psychiatric Association.

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Kevin Brewer

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Human Cognition and Cognitive Science: A

PHYSIOLOGICAL OR ENVIRONMENTAL FACTOR	HOW HUMAN BEHAVIOUR IS AFFECTED

Part 4: Physiological and Environmental Factors

INTRODUCTION

In this article, the effect of a range of human physiological and environmental factors on human performance is summarized - see Table 1. The relationship between these factors and performance can be modelled relatively easily using mathematical approaches. Neural networks may also be used to automate more complex interactions between groups of physiological and/or environmental factors. A number of these mathematical and neural networks approaches are also reviewed here.

COMPUTER MODELLING OF PHYSIOLOGICAL AND ENVIRONMENTAL BEHAVIOURAL MODIFIERS

Table 1 shows that physiological and environmental factors generally affect human performance in predicable ways. These may be defined as functional relationships between variations in each factor according to performance level. Combinations of many of these factors will, however, lead to more complex interactions resulting in performance changes that are more difficult to model mathematically.

The most efficient and arguably the simplest way to create computer models of human behaviour that are used to model small numbers of simulated physiological and environmental factors is to develop and incorporate mathematical algorithms and/or probability models - behavioural modifiers - within behavioural representations. However, where large numbers of environmental and physiological factors need to be modelled, the use of neural networks becomes more efficient. Examples of some of these approaches are summarized below.

STOCHASTIC MODELLING OF HUMAN RISK TO IMPROVE REALISM IN SIMULATED BATTLES

Price et al describe an approach to improving the realism of military entity behaviours in training simulators by using probabilistic approaches (Price et al 2000). They employ the principle of combat survivability analysis to allow entities to evaluate their actions

Illness	In general, illness and pain reduce task performance, concentration and recall, although the relationship can be complex - eg increased recall of information relevant to particular illness (Banyard 1996).
Noise	Increased noise increases mistakes where concentration is needed to do a task (Broadbent and Little 1960) and (Willner and Neiva 1986). Effects of noise can still reduce performance a short time after the noise has ceased (Glass et al 1969). On the other hand, desired or "pleasant" noise such as music can improve performance when carrying out mundane tasks (Bell et al 1996).
Pollution	Reduced performance and concentration after breathing polluted air (Lewis et al 1970).
Heat	As temperature rises, performance when carrying out reaction time tasks, tracking and vigilance tasks, memory and mathematical calculations improves and then, at temperature above 32C performance deteriorates (Bell et al 1996). High humidity also reduces performance - thus acclimatisation to new environments is important
Cold	Performance drops with reducing temperature especially below 13C (Bell et al 1996). Performance can be improved with practice as long as conditions are not too severe.
Illumination	Performance improves with illumination until glare limits visual perception (Bell et al 1996). The colour of lighting can also affect performance (Goldstein 1942).
Crowding	Generally performance declines with population density (Paulus et al 1976). The presence of other people can increase performance when carrying out simple tasks, but performance is reduced when carrying out complex tasks - complex tasks are best tackled without distraction (Cave 2000). Crowding can lead to cognitive overload as there is less time to process each event and to pay attention to details (Bell et al 1996).
Tiredness/Sleep Deprivation	Sleep deprivation leads to inability to concentrate, forgetfulness and inability to recognise tasks errors (Haworth and McAlpine 1998). Human performance alters with circadian rhythms (Blake 1967).
Hunger	Perception is influenced by hunger - abstract shapes are perceived as being "food-related" as food deprivation increases over 12 hours (Gilchrist and Nesberg 1952). Food related words are perceived faster than non-food related words as food deprivation increases, but after 24 hours this is reversed (Postman and Crutchfield 1952).

against some notion of their own survivability. Thus at any instant in time, the entity is able to evaluate its probability of survivability in its current or a planned situation from the formula below:

Psurv =

1-(Pthreat x Pdetect x Paim x Pfire x Pdetonate x Pkill)

Where:

Psurv: the probability of the entity surviving, derived from the above by determining:

Pthreat: the probability of a threat activity in the locality of the entity

Pdetect: the probability of the entity having been detected and of being tracked and targeted by enemy forces

Paim: the probability that the enemy targeting the entity will aim correctly

Pfire: the probability that the enemy will fire correctly

Pdetonate: the probability that the enemy ammunition round will detonate correctly

Pkill: the probability that if the round strikes the entity, that a kill results

The calculation of a probability value for survivability gives the simulated entity a value of the risk associated with its current situation or a planned task. In order to model the variability in human personality according to the amount of risk that people are prepared to take, entities are assigned a risk 'threshold' value that they try not to exceed.

This value varies among entities, allowing a group of entities to behave in less predictable, more human-like ways as the tasks they attempt become more dangerous. To avoid exceeding risk thresholds, entities may choose to hide, or to run away or surrender instead of fighting. Of course, the incorporation of group goals and group responsibility complicates matters - an entity acting in the interests of its battle group would be likely to take greater risks than if it were acting selfishly. This matter is not, however, discussed in Price et al (2000).

MODELLING THE EFFECT OF EMOTIONS ON DECISION-MAKING PROCESSES

Johns and Silvermans describe how generic, reusable performance moderator functions for emotions modelling may be formalized mathematically (Johns and Silvermans 2001). This research is reviewed in depth in a subsequent article on the computer modelling of

motivation, leadership and personality and so is only briefly described here.

This approach involves the derivation of numerical 'utility' values for activities (events) calculated from formulae that manipulate goal and personality weightings. A hierarchical tree of the computer agent's - or computer model's - goals is elicited, and for each goal and sub-goal node(s), success and failure value pairs are given.

A series of emotional 'intensity' formulae are given in Johns and Silvermans (2001) that are used to derive intensities for a range of emotions (joy, distress etc) that may be evaluated from the success or failure of an event using these goal weightings.

In addition, five main human personality features are used: surgency, agreeableness, conscientiousness, emotional stability and openness to experience - and the final utility value for an action is derived from a single formula that combines emotional intensity values with personality trait weightings.

Furthermore, the model of decision theory used in Johns and Silvermans (2001) requires the consideration of other agents' utility values for an event occurring. From these various utilities, the agent can decide if a planned course of action will produce not only a suitable emotional response within itself, but also a suitable emotional response in the action recipients.

Similar mathematical modelling has been used to predict the behaviour of non-human animals in food selection (Krebs and Davies 1993). When there is a choice of food, which is the optimal diet? The decision to choose a particular food source has to be measured against the efforts to gain that food. The optimal diet can be calculated by the equation:

$$\frac{\text{net energy gain (kcals)}}{\text{handling time or digestion (kcals)}}$$

NEURAL NETWORKS APPROACHES

The interactions between physiological and environmental factors upon human performance - as shown in Table 1 - may be described numerically in data grids. Data sets like these provide ideal training information for neural network systems.

Neural networks are candidates for modelling the effects of larger groups of physiological and/or environmental factors upon performance, where algorithmic approaches begin to get cumbersome and slow to process. An example of how neural networks are trained from subject matter expert input data is given in Liang

et al (2001).

This paper describes the use of neural networks to perform command and control decision making for simulated military scenarios. Neural networks could be applied to this domain to produce systems that vary agent behaviours depending on input physiological and environmental information. The neural networks approach is most efficient for systems in which the interactions of large numbers of factors need to be represented. These interactions do not need to be understood fully to be modelled, as long as accurate numerical data is collected to train the network, describing the variations in performance observed with changes in factor values.

LIMITATIONS OF INCORPORATING MATHEMATICAL BEHAVIOURAL MODIFIERS IN COMPUTER MODELS OF HUMAN COGNITION

As Table 1 implies - one of the difficulties associated with incorporating potential physiological and environmental behavioural modifiers in computer models is the sheer number of modifiers that could be used (Gillis, 1998).

> For each possible modifier there needs to be data and a model supporting both the causes and the practical effects of the modifier. This can make the effort involved in producing such a model excessive. For example, if tiredness is to be included in a model then every unit needs to start the simulation with its current tiredness level set. Throughout the simulation this needs to be updated. Every action which might be affected by tiredness needs to include a model of its effect. Physical activities can be modified, movement might be slower ... additionally behaviours might be different, a tired (agent) might be more cautious than an alert one and more prone to making mistakes. This would need to be included in any decision making components of the system (Baxter et al 2000).

Baxter concludes by offering practical advice to developers keen to incorporate algorithmic behavioural modifiers within current computer models and simulations.

> It can be seen that adding more `human-like` realism can have wide spread consequences for a system. Both in terms of the modelling effort needed to go into a system and the data required to set up a model. While such effect may be important in some cases, in others they will just represent an unnecessary and expensive add on to the system. It is important, therefore, to consider what effect the new model will have on the outcome of a simulation and concentrate on those psychological effects most likely to enhance realism. Only by adopting such a pragmatic approach can it be possible to include psychological factors

> within a simulation in the near future. It is vital therefore to gain a clear understanding of what factors are going to dominate the outcome of a simulation (Baxter et al 2000).

CONCLUSION

There are a large number of physiological and environmental factors that affect human performance. The range of factors described in Table 1 is not exhaustive. Mathematical and probability models can be used to describe the behavioural modifiers needed to produce computer programs that exhibit these responses given appropriate simulated stimuli. Although it is relatively straightforward to incorporate algorithmic behavioural modifiers within computer models of human behaviour, current hardware and software technologies enforce limits on the number of modifiers that may be used efficiently due to the processing overhead that these incur.

It is important, therefore, to determine which modifiers are of most relevance to the simulation or architecture being developed in order to achieve a balance between model fidelity and processing efficiency.

Alternatively, where large numbers of behavioural modifiers are necessary in the model, neural networks become efficient tools for gauging the effect of physiological and environmental factors upon performance.

However, neural networks approaches to cognitive modelling are not always popular due to concerns of embedding networks in more traditional AI systems to achieve an architecture that has wider scope. Thus, in this domain, a neural network that produces a utility value for a task given physiological and environmental stimuli might be incorporated in an agent architecture that has a rule base describing how it carries out it tasks. These AI systems incorporating a range of AI technologies are known as 'hybrids'.

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